

New CLAIMS

1. A method for manufacturing products with a coating, wherein from at least one mass comprising at least natural polymers, a base product is manufactured, while to at least one part of the product, a coating is applied, a coating being used having a surface tension which is approximately equal to or preferably lower than the surface tension of a portion of the mass, at least of the or each relevant part of the base product to which the coating is applied, characterized in that to at least a portion of the base product, a first coating is applied, after which a second coating is applied over at least a portion of the first coating, such that at least part of the product is covered by the first and second coating and a further part of said product is covered by the first or second coating only.
2. A method according to claim 1, wherein the base product is formed in a mold with raising of pressure and/or temperature, preferably by means of injection molding.
3. A method according to claim 1 or 2, wherein the at least one mass is introduced in or through a mold and is heated in the mold, such that at least cross-linkage of the natural polymers occurs, while surface tension-reducing agents are incorporated in the mass.
4. A method according to any one of the preceding claims, wherein the at least one mass is at least substantially manufactured as paper-forming mass.
5. A method for manufacturing coated products, according to any one of the preceding claims, wherein in the at least one mass, release agents are incorporated in an amount such that during heating, a portion of the release agents egresses from the mass and bonds to the wall of the mold, such that during manufacture of successive products in the same mold, a substantially constant layer of release agent always remains present.
6. A method according to any one of the preceding claims, wherein as release agent, a surface tension-reducing component is added to the mass.
7. A method according to any one of the preceding claims, wherein a coating is used having a surface tension of less than 42 dyne/cm ($42 \cdot 10^{-3}$ N/m), preferably less than 36 dyne/cm ($36 \cdot 10^{-3}$ N/m) and more in particular less than 32 dyne/cm ($32 \cdot 10^{-3}$ N/m).

8. A method according to any one of the preceding claims, wherein a product is formed which, after leaving the molding die in which it is formed, has a surface tension of less than 44 dyne/cm and greater than 30 dyne/cm, while a coating is applied to at least a portion of the surface, said coating being
5 water-based and having a surface tension of between 40 and 27 dyne/cm.
9. A method according to any one of the preceding claims, wherein the product, upon leaving the mold, has a moisture content of less than 3 wt.%, while by means of coating, moisture, in particular water, is introduced into the product.
10. A method according to any one of the preceding claims, wherein as coating, a water-based, one-phase system is used, preferably having few micelles.
11. A method according to any one of the preceding claims, wherein the at least one coating is applied to the base product at a temperature of between
15 20°C and 50°C, preferably between 25°C and 50°C, the arrangement being such that the surface tension of the coating is slightly reduced with respect to the surface tension at lower temperature.
12. A method according to any one of the preceding claims, wherein as coating, in particular as first coating, a coating is used comprising at least one
20 component from the group of:
melamine, acrylic binders, water-resistant lacquers, cellulose lacquers, cellulose acetate propionates, polyethylene, polyacrylates, synthetic polymers, natural polymers, synthetic waxes, natural waxes, polylactic acid, derivatives of the preceding or combinations of the preceding.
13. A method according to any one of the preceding claims, wherein as coating, in particular as second coating, a coating is used comprising at least one component from the group of:
25 acrylic binders, latices, styrene-butadiene latex, polyvinyl alcohol, polyvinyl acetate, polyacrylates, polyethylene glycol, polylactic acid, synthetic polymers,
30 natural polymers, natural waxes, synthetic waxes, for instance ionic polyethylene waxes, derivatives of the preceding or combinations of the preceding.
14. A method according to any one of the preceding claims, wherein in the coating, in particular the first and/or second coating, cross-linkers are
35 incorporated.

15. A method according to claim 14, wherein cross-linkers are used from the group of zirconium acetate, urea formaldehyde, melamine formaldehyde, glyoxal, ammonium zirconium carbonate, polyamideamine-epichlorohydrin, epoxides, trimetaphosphate, derivatives thereof or combinations of the preceding.
16. A method according to any one of claims 13-16, wherein in the at least one coating, at least one of the waxes is combined with at least one of the other components mentioned.
17. A method according to any one of the preceding claims, wherein at least one coating is used which increases the water vapor proofness of the product.
18. A method according to any one of the preceding claims, wherein at least as outer or outermost coating, an FDA-allowed coating is used.
19. A method according to any one of the preceding claims 11-18, wherein at least as outer or outermost coating, a fat-resistant and/or fattight coating is used.
20. A method according to any one of the preceding claims, wherein the at least one coating is applied to only one part of the product, the surface tension of the parts of the product that remain clear of the coating being kept or rendered relatively low with respect to the surface tension of said coating.
21. A method according to any one of the preceding claims, wherein the product is manufactured from at least two different masses, the surface tensions of the parts formed from the different masses preferably differing from one another.
22. A method according to any one of the preceding claims, wherein the at least one coating is applied by spraying.
23. A method according to any one of the preceding claims, wherein the at least one coating is applied by atomizing.
24. A method according to claim 22-23, wherein the at least one coating is applied by airless spraying or atomizing.
25. A method according to claim 22-23, wherein the at least one coating is applied by spraying or atomizing with compressed air-control.
26. A method according to any one of claims 1-21, wherein the product has at least one receiving cavity, the receiving cavity being at least partially filled with fluid coating and subsequently poured empty, such that a film of coating remains behind on at least a portion of the wall of the receiving cavity.

27. A method according to any one of the preceding claims, wherein on or in at least a part of the base product there is provided an agent influencing the properties of the relevant product part, prior to the application of the at least one coating to the relevant product part.
- 5 28. A method according to claim 27, wherein as said influencing agent, a softener or softener-containing agent is used.
29. A method according to claim 27-28, wherein as said influencing agent, water or a water-containing agent is used.
- 10 30. A method according to any one of the preceding claims, wherein a coating is used comprising an agent influencing the properties of the base product, in the form of at least a softener.
31. A method according to claim 30, wherein as softener, water is used.
32. A method according to claim 30-31, wherein to the relevant base product part, at least one coating is applied which is relatively dense with respect to said agent influencing the properties of the base product.
- 15 33. A method according to any one of the preceding claims, wherein a coating is used in which surface tension-reducing agent is included which provides for a reduction of the surface tension of the coating layer after drying.
34. A method according to claim 33, wherein as surface tension-reducing agent, an oily or oil-containing product is used.
- 20 35. A method according to claim 33-34, wherein as surface tension-reducing agent, silicone oil is used.
36. A method according to claim 35, wherein between 0.5 and 15 vol.% of silicone oil is used.
- 25 37. A method according to claim 36, wherein between 2 and 10 vol.% of silicone oil is used.
38. Use of a release agent in a product to be manufactured from a mass, wherein in the mold, by means of release agent egressing from the mass, a substantially constant layer of release agent is obtained and maintained during the manufacture of successive products.
- 30 39. A product manufactured with a method according to any one of claims 1-35.
40. A product according to claim 39, wherein a portion of the product, in particular a portion of the product which faces outwards during use, is uncoated or provided with a moisture-permeable, at least vapor-permeable coating.
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41. A product according to claim 40, wherein the product is a cup, comprising a longitudinal wall, at least a portion of the outer side of the longitudinal wall, in particular a portion connecting to the free longitudinal edge thereof, being provided with a substantially water proof coating, at least a further part of the outer side of the longitudinal wall being uncoated or provided with said water-permeable, at least vapor-permeable coating.
42. A product according to claim 41, wherein at least the bottom of the cup is provided with two layers of coating.
43. A coating for use in a method according to any one of claims 1-35.
44. A coating according to claim 43, comprising a surface tension-reducing agent, the surface tension-reducing agent constituting between 25% and 50% of the volume.
45. A coating according to claim 44, wherein the surface tension-reducing agent constitutes about 40% of the volume.
46. A mass, comprising natural polymers, for the manufacture of base products, suitable for applying a coating thereto, wherein the mass comprises between 0.075% and 1.5% of surface tension-reducing agent in the form of an oil or oily agent, calculated on the dry substance in the mass.
47. A mass according to claim 46, containing between 0.1 wt.% and 1 wt.% of surface tension-reducing agent, calculated on the dry substance.